Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
For
Fairhaven's Incorporated

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- Inventory land uses within the recharge areas of all public water supply sources;
- Assess the susceptibility of drinking water sources to contamination from these land uses; and
- Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared:
May 22, 2003

Table 1: Public Water System (PWS) Information

PWS NAME	Fairhaven's Incorporated
PWS Address	334 Marion Road
City/Town	Middleborough, Massachusetts 02346
PWS ID Number	4182003
Local Contact	Edwin Mello
Phone Number	(508) 947-1660

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	4182003-01G	181	478	Moderate
Well #2	4182003-02G	181	478	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

Fairhaven's Inc is a rest home serving a population of 28 people. The facility is supplied by two ground water wells; Well #1 is 360 feet deep and Well #2 is 245 feet deep. The wells for Fairhaven's are located about 230 feet behind the facility on the edge of a forested area. Well #1 and Well #2 each have a Zone I radius of 181 feet and an Interim Wellhead Protection Area (IWPA) radii of 478 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by **the** water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

The wells serving the facility are treated with potassium carbonate for corrosion control. The DEP requires public water suppliers to monitor the quality of the water. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 and review a copy of the most recent Consumer Confidence Report.

Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone Is;**
2. **An Aboveground Storage Tank (AST) With Heating Oil; and**
3. **Hazardous Materials Storage.**

The overall ranking of susceptibility to contamination for the well is moderate, based on the presence of at least one moderate threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone Is –** Currently, the wells do not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone I contain a portion of a maintenance shed for the facility. The public water supplier does not own and/or control all land encompassed by the Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

   Recommendations:

✓ When feasible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.

✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

2. **Aboveground Storage Tank (AST) –** There is an AST located in the basement of the Fairhaven main building. If managed improperly, Aboveground Storage Tanks

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Storage, and use of hazardous materials	Both Wells	Both Wells	Moderate	Maintenance materials and gasoline storage in shed.
Parking lot, driveways & roads	Both Wells	Both Wells	Moderate	Limit road salt usage and provide drainage away from wells
Septic Systems	No	Both Wells	Moderate	See septic systems brochure in the appendix
Fuel Storage Above Ground	No	Both Wells	Moderate	3 – 275 gallon heating oil tanks in basement of main facility building.
Structures	Both Wells	Both Wells	-	Non-water supply structures in Zone I

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

can be a potential source contamination due to leaks or spills of the chemicals they store.

Recommendations:

- ✓ Aboveground storage tanks in your IWPA should be located on an impermeable surface, and also contained in an area large enough to hold 110% of the complete liquid volume, should a spill occur.
- ✓ Upgrade oil storage tanks to incorporate proper containment and safety practices. Any modifications to the AST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding ASTs.

3. **Storage, use, and handling of hazardous materials** - The maintenance garage is located within the Zone I of the wells. The garage was tidy, with no evidence of significant amounts of materials storage or spills. Although the garage has a cement floor and there are no floor drains, the materials kept within the garage (gasoline power generator, lawn mower and small amounts of petroleum products) could pose a potential threat to the well if managed improperly, due to proximity to the wells and the potential for accidental release.

Recommendation:

- ✓ Consider an alternative storage facility away from the Zone I. Until an alternative storage site is available, provide secondary containment and proper management of these materials.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the wells' susceptibility to contamination. Fairhaven Incorporated is commended for locating their new septic system across the street, placing it outside of the Zone I for the wells. Fairhaven Incorporated should review and adopt the key recommendations above and the following:

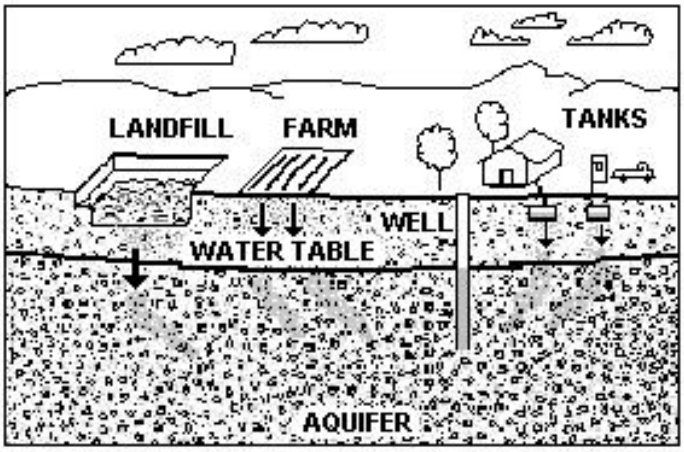

Figure 1: Example of how a well could become contaminated by different land uses and activities.

Priority Recommendations:

- ✓ Provide containment for the heating oil tanks to prevent groundwater contamination if leakage occurs.
- ✓ Provide containment for gasoline and other hazardous material storage in the maintenance shed.

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ When feasible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Continue to prohibit public access to the wells by locking gates and posting signs.
- ✓ Conduct regular inspections of the Zone I.
- ✓ Redirect road and parking lot drainage in the Zone I away from well.
- ✓ Never use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Upgrade to propane or natural gas for back-up power sources.

For More Information:

Contact Isabel Collins in DEP's Lakeville Office at (508) 946-2726 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier and town boards.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff. Post labels as appropriate on raw materials and hazardous waste.
- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Septic system components should be located, inspected, and maintained on a regular basis.

Planning:

- ✓ Work with local officials in town to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Industrial Floor Drains Brochure
- Source Protection Sign Order Form